



April 13, 2006

Mr. Ron Sutton  
McCrone, Inc.  
111 South West Street, Ste. 6  
Dover, DE 1 19904

RE: PLUS review – PLUS 2006-03-02; Rayfield Point

Dear Mr. Sutton:

Thank you for meeting with State agency planners on March 22, 2006 to discuss the proposed plans for the Rayfield Pont project to be located on State Road 35 near the intersection of SR 35 and SR 387.

According to the information received, you are seeking site plan review for 363 units on 113 acres located in Levels 2 & 3.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Kent County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

#### **Executive Summary**

The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The full text of this letter represents the official state response to this project. *Our office*

*notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.*

### **State Strategies/Project Location**

- This project is located in Investment Levels 2 and 3 according to the *Strategies for State Policies and Spending*. Only a small portion of the site is in Level 2. This site is also located in the Kent County Growth Zone. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments will support growth in these areas, but please be advised that the State may have other priorities in the near term future. We encourage you to design the site with respect for the environmental features which are present.

### **Street Design and Transportation**

- Carpenters Bridge Road is classified as a minor arterial road. Minor arterial road rights-of-way vary in Delaware but are typically wider than those of local roads. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 40 feet from the centerline on collector roads. Therefore they will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.
- DelDOT does not recommend that the County require a traffic impact study for this conditional use application. However participation in road improvements should still be required of this developer.
- As planned, the collector street providing access to Carpenters Bridge Road would serve 363 dwellings where it intersects Carpenters Bridge Road. DelDOT standards state that driveways shall not be permitted on subdivision streets serving more than 300 dwelling units. Accordingly the south portion of the street system will need to be redesigned to provide other access for the lots near the entrance.
- Lots 226 through 245 and Lots 246 through 267 completely surround areas of open space. It is recommended that on each of those blocks at least a 15-foot wide accessway be provided into the open space from the street. If security is a

concern, it could be gated, but there should be a means for maintenance workers to access the open space without going through a resident's yard.

### **Natural and Cultural Resources**

- The Division of Historic and Cultural Affairs (DHCA) recommends that the developer provide sufficient landscaping to block the view of this development from the Fountain houses and the historic house to the northwest.
- The DHCA would like the opportunity to look at the existing buildings, to determine if any need to be documented, and to do so prior to any demolition activities. In addition, they would appreciate the opportunity to see if any archaeological sites do in fact exist, and to learn something about their location, nature, and extent prior to any ground-disturbing activities.
- Based on Statewide Wetland Mapping Project (SWMP) mapping, both nontidal and tidally-influenced palustrine wetlands were mapped on subject parcel. Nontidal palustrine forested, palustrine riparian, and palustrine scrub-shrub emergent wetlands were mapped along most of the boundary, while scattered, discretely-mapped units were mapped in the central portion of the parcel.

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. A 100-foot vegetated buffer should be implemented from the edge of the wetland complex.

This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with the Murderkill River, greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Murderkill River watershed, and reducing the probability that the State will achieve the required TMDL nutrient reductions. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving as much of the existing forested buffer as possible. Otherwise, a buffer width of at least 100-foot should be retained to protect the water and habitat quality of this waterway and its' wetlands

- The Drainage Program requests that all storm drains and catch basins for this project be on open space, within street right-of-ways, or within alleys. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels

can hinder drainage patterns as well as future maintenance to the storm drain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access. Drainage easements for storm drains and catch basins should be 15 feet on each side of the pipe or catch basin.

- DNREC program botanist, Bill McAvoy, respectfully requests the opportunity to survey the forest and wetland resources which could be impacted by this project. His observations and recommendations would allow them to make more informed comments and allow the applicant the opportunity to reduce impacts to rare species. Please contact Bill at (302) 653-2880.
- Since this project entails disturbance to wetlands and forest loss, DNREC recommends that the developer/landowner contact the Delaware Native Plant Society to initiate a plant rescue. Selected plants from the site of disturbance will be collected by Society members and transplanted to the Society's nursery. Plants will then be used in restoration projects and/or sold at the Society's annual native plant sale. This can be done at no expense or liability to the developer/landowner. Please contact Lynn Redding at (302) 736-7726. [lynn\\_redding@ml.com](mailto:lynn_redding@ml.com)
- The current site plan will not only result in more than 50% forest loss, but will serve to fragment the remaining forest on the property. Adjacent developments will also result in a large amount of forest loss, leaving very little habitat in this area. DNREC recommends that this development be downsized to allow for greater forest and wetland preservation. A larger portion of the forest on this property should be left intact as community open space, rather than left in small, fragmented sections as in the current site plan. This would entail reducing the number of lots and infrastructure, especially in the northern portion of the parcel.

The following are a complete list of comments received by State agencies:

**Office of State Planning Coordination – Contact: David Edgell 739-3090**

This project is located in Investment Levels 2 and 3 according to the *Strategies for State Policies and Spending*. Only a small portion of the site is in Level 2. This site is also located in the Kent County Growth Zone. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments will support growth in these areas, but please be advised that the State may have other

priorities in the near term future. We encourage you to design the site with respect for the environmental features which are present.

Our office supports the use of Transfer of Development Rights on this parcel.

**Division of Historic and Cultural Affairs – Contact: Alice Guerrant 739-5685**

Nothing is known within this parcel. The S. B. Fountain House (K-2794; Beers Atlas of 1868) and the S. B. Fountain Tenant House (K-2795) are across Carpenter Bridge Rd. from this parcel. Another historic house (K-2800) is just outside the northwest corner of this parcel. Beers Atlas shows the A. Whitaker House at the location of the current farmstead on the parcel, as well as the Mrs. E. Harrington House and another unnamed house on Carpenter Bridge Rd. It also shows the E. Cooper House within or very close to the northern edge of this parcel. There may be archaeological sites associated with these occupations. There are a number of known prehistoric archaeological sites in this area in similar settings, so that the potential for such sites within this parcel is high in some areas.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the Whitaker House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out. The Division of Historic and Cultural Affairs will be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

They recommend that the developer provide sufficient landscaping to block the view of this development from the Fountain houses and the historic house to the northwest.

They would like the opportunity to look at the existing buildings, to determine if any need to be documented, and to do so prior to any demolition activities. In addition, they would appreciate the opportunity to see if any archaeological sites do in fact exist, and to learn something about their location, nature, and extent prior to any ground-disturbing activities.

**Department of Transportation – Contact: Bill Brockenbrough 760-2109**

- 1) This development is proposed to be a receiving area in a TDR. DelDOT supports TDR as a growth management tool and they applaud its use.

- 2) Carpenters Bridge Road is classified as a minor arterial road. Minor arterial road rights-of-way vary in Delaware but are typically wider than those of local roads. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 40 feet from the centerline on collector roads. Therefore they will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- 3) The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.
- 4) DelDOT does not recommend that the County require a traffic impact study for this conditional use application. However participation in road improvements should still be required of this developer. TIS have been done for other developments in this area, notably Tuscany Estates and Twin Farms (under the name Johnnycake Landing). For this reason, we will not require a TIS for this development, but we will require that the developer participate in funding some of the road improvements identified as being necessary in those studies.
- 5) As planned, the collector street providing access to Carpenters Bridge Road would serve 363 dwellings where it intersects Carpenters Bridge Road. DelDOT standards state that driveways shall not be permitted on subdivision streets serving more than 300 dwelling units. Accordingly the south portion of the street system will need to be redesigned to provide other access for the lots near the entrance.
- 6) Lots 226 through 245 and Lots 246 through 267 completely surround areas of open space. DelDOT recommends that on each of those blocks at least a 15-foot wide accessway be provided into the open space from the street. If security is a concern, it could be gated, but there should be a means for maintenance workers to access the open space without going through a resident's yard.
- 7) A sight distance analysis will be required for the proposed entrance.
- 8) The developer's site engineer should contact Mr. Brad Herb, our project manager for Kent County, regarding our specific requirements for streets and access. He may be reached at (302) 266-9600.

**The Department of Natural Resources and Environmental Control – Contact:  
Kevin Coyle 739-9071**

**General Comment**

This development is in a Level 3 area and is adjacent to at least 7 other proposed or in-progress developments (Lynn Wood Village, Hampton Ridge, Roseville Estates, Weatherstone, Woods Edge/Lessard Builders, Tuscany Estates, and Autumn Glen). DNREC is especially concerned about cumulative impacts to forests and wetlands in this area and do not approve of the site plan as it is proposed. There is no consideration for wetland or forest preservation with the current site plan. There are both lots and infrastructure directly within wetlands or well within 100 feet of wetlands. Being located in a Level 3 area doesn't preclude the responsibility for having a site plan that fits the character and value of the surrounding area and is designed in an environmentally sensitive way.

**Soils**

Based on the Kent County soil survey Sassafras, Fallsington, Elkton, and Johnston were mapped in the immediate vicinity of the proposed project. Sassafras is a well-drained upland soil that, generally, has few limitations for development. Fallsington and Elkton are poorly-drained wetland associated (hydric) soils that have severe limitations for development. Johnston is a very poorly-drained wetland associated (hydric) floodplain soil that has the highest severity level for development.

**Wetlands**

Based on Statewide Wetland Mapping Project (SWMP) mapping, both nontidal and tidally-influenced palustrine wetlands were mapped on subject parcel. Nontidal palustrine forested, palustrine riparian, and palustrine scrub-shrub emergent wetlands were mapped along most of the boundary, while scattered, discretely-mapped units were mapped in the central portion of the parcel.

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. A 100-foot vegetated buffer should be implemented from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.

This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with the Murderkill River, greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Murderkill River watershed, and reducing the probability that the State will achieve the required TMDL nutrient reductions. Headwater streams and their associated wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system downstream. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving as much of the existing forested buffer as possible. Otherwise, a buffer width of at least 100-foot should be retained to protect the water and habitat quality of this waterway and its' wetlands.

### **Wetland Regulations**

PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). This delineation should be verified by the Army Corps of Engineers through the Jurisdictional Determination process. Please note that impacts to palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763.

In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Programs Section. Each of these certifications represents a separate permitting process.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

### **Impervious Cover**

Research has consistently shown that once a watershed exceeds a threshold of 10 percent imperviousness, water and habitat quality irreversibly decline. Based on analyses of 2002 aerial photography by the University of Delaware, the Murderkill watershed had about 8.1 percent impervious cover. Although this data is almost 4 years old and likely an underestimate, it underscores the importance of a proactive strategy to mitigate for predictable and likely cumulative environmental impacts. Since the amount of



imperviousness generated by this project is likely to be much higher than the desirable watershed threshold of 10 percent, the applicant is strongly advised to pursue best management practices (BMPs) that mitigate or reduce some of the most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials (“pervious pavers”) in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are examples of practical BMPs that could easily be implemented to reduce surface imperviousness. Based on a review of the submitted PLUS application, the applicant projects that only about 25% of this parcel will be rendered impervious following this parcel’s development. However, this figure appears to be a significant underestimate given the scope and density of this project. The applicant should be made aware that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be included in the impervious surface calculation; otherwise, an inaccurate assessment of this project’s actual environmental impacts will result. It is strongly advised that this figure be recalculated to reflect all of the aforementioned forms of constructed post-development surface imperviousness.

## **TMDLs**

With the adoption of Total Maximum Daily Loads (TMDLs) as a “nutrient-runoff-mitigation strategy” for reducing nutrients in the Murderkill River watershed, reduction of nitrogen and phosphorus loading will be mandatory. A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited water body” can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Nutrient reductions prescribed under TMDLs are assigned to those watersheds or basins on the basis of recognized water quality impairments.

In the Murderkill watershed, the primary source of water quality impairment is associated with nutrient runoff from agricultural and/or residential development. In order to mitigate for the aforementioned impairments, a post-development TMDL reduction level of 50 and 30 percent will be required for nitrogen and phosphorus, respectively. Compliance with the post-development TMDL nutrient loading reduction requirements will be assessed via nutrient budget protocol, a computer-based model that quantifies post-development nutrient loading under a variety of land use scenarios in combination with a variety (or absence) of BMP types and intensities. This post-development loading rate is then compared with the pre-development loading rate as a means to assess whether the project meets the acceptable TMDL reduction levels. Based on a preliminary evaluation of this project using this model, the development as currently conceived, will **not** meet the Murderkill River watershed TMDL nutrient reduction requirements for nitrogen and phosphorus. The applicant is strongly advised to consider the use of

appropriate BMPs and Best Available Technologies (BATs) to ensure compliance. Examples of BMPs or BATs that should be used to significantly reduce nutrient loading from this project include: practices that prevent or mitigate surface imperviousness; maintenance of recommended wetland buffer widths; preserving or significantly reducing the amount of forest cover removal, and; using innovative or “green-technology” stormwater management methodologies rather than “open-water” stormwater management structures. As mentioned previously, it is suggested that the applicant recalculate and/or correct the projected amount of post-development impervious cover on the basis of a more realistic assessment since surface imperviousness is an important variable in the nutrient budget calculation. DNREC suggests that the applicant verify their project’s compliance with the specified TMDL loading rates by running the model themselves (using the corrected impervious cover figure). Please contact Lyle Jones of Watershed Section at 739-9939 for the acceptable model protocol.

### **Water Supply**

The project information sheets state water will be provided to the project by Artesian Water Company via a central water system. DNREC records indicate that the project is located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity 04-CPCN-17.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.

### **Sediment and Erosion Control/Stormwater Management**

1. Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by the Kent Conservation District prior to any land disturbing activity (i.e. clearing, grubbing,

filling, grading, etc.) taking place. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to the Kent Conservation District. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.

2. The following notes must appear on the record plan:
  - The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.
  - The Kent Conservation District reserves the right to add, modify, or delete any erosion or sediment control measure, as it deems necessary.
  - A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.
3. Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.
4. All drainage ways and storm drains should be contained within drainage easements and clearly shown on the plan to be recorded by Kent County.
5. A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.

Comments:

1. There are known drainage concerns in the general area where the site is located; the engineer is encouraged to meet with the district to discuss the problems
2. The designer is encouraged to consider the conservation design approach and limit the amount of tree clearing required for the development of the site including the stormwater management facilities shown in the wooded areas.

3. Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.
4. It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.
5. A letter of no objection to re-recording will be provided once the detailed Sediment and Stormwater Management plan has been re-approved.
6. Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.
7. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.

## **Drainage**

The Drainage Program requests that all storm drains and catch basins for this project be on open space, within street right-of-ways, or within alleys. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels can hinder drainage patterns as well as future maintenance to the storm drain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access. Drainage easements for storm drains and catch basins should be 15 feet on each side of the pipe or catch basin.

The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the start of construction.

This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). Preserve existing riparian buffers to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality in the Murderkill watershed, the Drainage Program encourages additional widths of vegetated buffers and other water quality measures on

this project. Please explore the use of a created wetland to filter excess nutrients in stormwater runoff from this site before releasing stormwater into Ash Gut.

### **Rare Species and Wetlands**

DNREC has never surveyed this property; therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site. However, there is a high probability of rare species occurring within the wetlands on this property as the GIS database, aerial photographs and State wetland maps indicate the presence of at least 3 coastal plain ponds. Coastal Plain ponds, provide breeding habitat for a variety of animals, including amphibians and invertebrates, and often support a unique and rare assemblage of plants. Upland forest buffers around these ponds are also critical, protecting the wetland from excess nutrients and invasion by non-native species. Forest buffers also provide critical habitat for salamanders during most of their annual life cycle.

In addition, records indicate that *Strix varia* (Barred Owl) is within the vicinity and likely within the project area as well. This state-rare bird could be impacted by the amount of forest and wetland loss being proposed.

### **Site Visit Request**

DNREC program botanist, Bill McAvoy, respectfully requests the opportunity to survey the forest and wetland resources which could be impacted by this project. His observations and recommendations would allow them to make more informed comments and allow the applicant the opportunity to reduce impacts to rare species. Please contact Bill at (302) 653-2880.

### **Plant Rescue**

Since this project entails disturbance to wetlands and forest loss, DNREC recommends that the developer/landowner contact the Delaware Native Plant Society to initiate a plant rescue. Selected plants from the site of disturbance will be collected by Society members and transplanted to the Society's nursery. Plants will then be used in restoration projects and/or sold at the Society's annual native plant sale. This can be done at no expense or liability to the developer/landowner. Please contact Lynn Redding at (302) 736-7726. [lynn\\_redding@ml.com](mailto:lynn_redding@ml.com)

### **Forest Preservation**

The current site plan will not only result in more than 50% forest loss, but will serve to fragment the remaining forest on the property. Adjacent developments will also result in

a large amount of forest loss, leaving very little habitat in this area. Wildlife that currently inhabit the forest will have to disperse into the surrounding area although very little suitable habitat exists. This displaced wildlife could conflict with people, resulting in an increase in wildlife related complaints and interactions of the roadways. This type of forest loss can also put pressure on nearby State protected lands such as wildlife areas, State forests and other public-owned properties.

DNREC recommends that this development be downsized to allow for greater forest and wetland preservation. A larger portion of the forest on this property should be left intact as community open space, rather than left in small, fragmented sections as in the current site plan. This would entail reducing the number of lots and infrastructure, especially in the northern portion of the parcel.

### **Solid Waste**

Each Delaware household generates approximately 3,600 pounds of solid waste per year. On average, each new house constructed generates an additional 10,000 pounds of construction waste. Due to Delaware's present rate of growth and the impact that growth will have on the state's existing landfill capacity, the applicant is requested to be aware of the impact this project will have on the State's limited landfill resources and, to the extent possible, take steps to minimize the amount of construction waste associated with this development.

### **Underground Storage Tanks**

There are no LUST site(s) located near the proposed project. However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

### **Air Quality**

Once complete, vehicle emissions associated with this project are estimated to be 27.9 tons (55,716.7 pounds) per year of VOC (volatile organic compounds), 23.1 tons (46,129.7 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 17.0 tons (34,035.3 pounds) per year of SO<sub>2</sub> (sulfur dioxide), 1.5 ton (3,029.7 pounds) per year of fine particulates and 2,330.3 tons (4,660,632.0 pounds) per year of CO<sub>2</sub> (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 11.2 tons (22,473.1 pounds) per year of VOC (volatile organic compounds), 1.2 ton (2,472.7 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 1.0 ton (2,052.0 pounds) per year of SO<sub>2</sub> (sulfur dioxide), 1.3 ton (2,648.0 pounds) per year of fine particulates and 45.6 tons (91,100.9 pounds) per year of CO<sub>2</sub> (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 4.5 tons (8,906.7 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 15.5 tons (30,979.9 pounds) per year of SO<sub>2</sub> (sulfur dioxide) and 2,284.8 tons (4,569,531.1 pounds) per year of CO<sub>2</sub> (carbon dioxide).

	VOC	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Mobile	27.9	23.1	17.0	1.5	2330.3
Residential	11.2	1.2	1.0	1.3	45.6
Electrical Power		4.5	15.5		2284.8
TOTAL	39.1	28.8	33.5	2.8	4660.7

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 4.5 tons of nitrogen oxides per year and 15.5 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, <http://www.energystar.gov/>:

“ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

- building envelope upgrades,
- high performance windows,
- controlled air infiltration,
- upgraded heating and air conditioning systems,
- tight duct systems and
- upgraded water-heating equipment.”

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

They also recommend that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction. The development should provide tie-ins to the nearest bike paths, links to mass transit, and fund a lawnmower exchange program for their new occupants.

**State Fire Marshal's Office – Contact: John Rossiter 739-4394**

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. **Fire Protection Water Requirements:**

- Water distribution system capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Townhouses)
- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required. (One & Two- Family Dwelling)
- Where a water distribution system is proposed for the site, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

b. **Fire Protection Features:**

- For townhouse buildings, provide a section / detail and the UL design number of the 2-hour fire rated separation wall on the Site plan.

c. **Accessibility**

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Carpenters Bridge Road must be constructed so fire department apparatus may negotiate it.



- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
  - Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
  - The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
  - The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.
- d. **Gas Piping and System Information:**
- Provide type of fuel proposed, and show locations of bulk containers on plan.
- e. **Required Notes:**
- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
  - Proposed Use
  - Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
  - Square footage of each structure (Total of all Floors)
  - National Fire Protection Association (NFPA) Construction Type
  - Maximum Height of Buildings (including number of stories)
  - Townhouse 2-hr separation wall details shall be shown on site plans
  - Note indicating if building is to be sprinklered
  - Name of Water Provider
  - Letter from Water Provider approving the system layout
  - Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
  - Provide Road Names, even for County Roads

Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: [www.delawarestatefiremarshal.com](http://www.delawarestatefiremarshal.com), technical services link, plan review, applications or brochures.

**Department of Agriculture - Contact: Milton Melendez 698-4500**

The Delaware Department of Agriculture has no objections to the Rayfield Point application. The *Strategies for State Policies and Spending* encourages responsible development in areas within a Level 3 Zone. This site is part of a “good recharge” area. DNREC has mapped all ground water potential recharge areas. A “good recharge” rating is the second highest rating and designates an area as having important groundwater recharge qualities. Maintaining pervious cover in “Excellent” and “Good” recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as “excellent” and “good” recharge areas adversely impacts the future prospects for agriculture in Delaware.

The Delaware Forest Service recognizes this as a TDR development and there are additional requirements for reforestation and tree preservation requirements. The Department encourages the developer to work with our office and the Kent County Planning and Zoning to meet these requirements.

**Public Service Commission - Contact: Andrea Maucher 739-4247**

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

**Delaware State Housing Authority – Contact Karen Horton 739-4263**

The proposal is to develop 363 dwelling units on 113 acres; 123 detached single-family homes and 240 attached townhomes. This proposed development is located approximately 1,240’ northeast along State Road 35 (Carpenter Bridge Road) from the intersection of State Road 35 (Carpenter Bridge Road) and State Road 387 (Roseville Road). According to the *State Strategies Map*, the proposal is located in an Investment Level 2 area and Investment Level 3 area. As a general planning practice, DSHA encourage residential development in these areas where residents will have proximity to services, markets, and employment opportunities. Furthermore, the proposal targets units for first time homebuyers. According to the most recent real estate data collected by DSHA, the average home price in Kent County is \$210,500. However, families earning 100% of Kent County’s median income, only qualify for mortgages of \$188,044. The provision of units within reach of families earning at least 100% of Kent County’s median income would help increase housing opportunities for first time homebuyers. To

note another positive aspect of the proposed development, is the use of mixed housing types to serve both first time homebuyers and move-up buyers.

**Department of Education – Contact: John Marinucci 739-4658**

The Department of Education requests the developer work with the local school district transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

**Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.**

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,

A handwritten signature in dark ink, appearing to read "Constance C. Holland". The signature is fluid and cursive, with the first name "Constance" being more prominent.

Constance C. Holland, AICP  
Director

CC: Kent County